



LANGLEY
POLICY
DIRECTIVE

Directive: LAPD 7000.2S
Effective Date: July 9, 2014
Expiration Date: June 30, 2019

Responsible Office: Center Operations Directorate (COD)

SUBJECT: Review Program for Langley Research Center (LaRC) Facility Projects

1. POLICY

a. General

(1) This Center will conduct the following Summary reviews (if applicable) in sequence for facility projects covered by this directive:

- (a) Project Requirements Review (PRR).
- (b) Conceptual Design Review (CoDR).
- (c) Preliminary Design Review (PDR).
- (d) Critical Design Review (CDR).
- (e) Integrated Systems Review (ISR).
- (f) Operational Readiness Review (ORR).

Attachments A-F describe the detailed review objectives and provide sample agendas for each review.

(2) In place of the above Summary Reviews for requirements and design, separate technical Tabletop Reviews and Management Oversight Reviews (MOR) may be held at the discretion of the Chief Engineer, COD. Attachments G-H describes the detailed review objectives and provides sample agendas for each review.

(3) Agendas can be tailored to the specific needs of each individual project, consistent with size, complexity, criticality, and risk.

(4) The process for implementing the reviews is described in LMS-CP-5621, "Facility Systems Engineering Project Review."

(5) The Chairperson of each review or the Customer Directorate Director may also establish other special reviews to supplement the above reviews.

a. Review Objectives

(1) The primary objective of the above reviews is to enhance the probability of success of

LaRC facility projects by meeting performance, cost, and schedule goals. This will be achieved using the cumulative knowledge of a team of engineers, scientists, technicians, and others who have been selected for their experience with the particular systems and functions involved. These reviews do not relieve the LaRC organization to which the project is assigned of the responsibility for the success of the project.

(2) The reviews will be comprehensive, covering the technical, cost, schedule, and safety aspects of the project.

b. Criteria

The criteria stated herein are minimum requirements for reviews of the technical and management aspects of LaRC's facility projects. The requirements of this directive do not supersede other reviews imposed by NASA Headquarters, or replace the scientific and technical reviews conducted by LaRC organizations or committees.

c. Records of Reviews

Records of all reviews shall be maintained in the master project file. Records shall include the material reviewed, minutes of the review, action items, and action item responses. Minutes of the review, including findings and action items, shall be distributed by the secretary to all panel members and other review invitees.

2. APPLICABILITY

a. Facility projects routinely covered by this directive include:

- (1) Discrete and Minor Construction of Facilities (CoF) projects as defined in NPR 8820.2
- (2) Demolition projects as defined in NPR 8820.2
- (3) Research Systems Projects equivalent in scope to CoF projects
- (4) Environmental Compliance and Restoration Projects as defined in NPR 8590.1
- (5) Facility Maintenance and Repair projects equivalent in scope to CoF projects

Applicability of this review program to a facility change is determined by the Chief Engineer, COD, in conjunction with the Directorate for which the facility change is being executed along with input from the COD Project Manager (Technical Point of Contact) assigned to the facility change task/project.

b. Additional projects to be subject to this review program can be designated by the Director, Safety and Mission Assurance Office (SMAO), or the Director, COD.

c. Applicability of this Policy Directive, as well as which reviews will be required, will be determined prior to detailed design beginning for a Design-Bid-Build acquisition or prior to Request For Proposal development for a Design-Build acquisition.

3. AUTHORITY

- a. NPD 7330.1, “Approval Authorities for Facility Projects”
- b. NPD 8820.2, “Design and Construction of Facilities”
- c. NPD 8831.1, “Maintenance and Operations of Institutional and Program Facilities and Related Equipment”
- d. NPD 8500.1 – “NASA Environmental Management”
- e. NPR 8820.2, “Facility Project Requirements”

4. APPLICABLE DOCUMENTS AND FORMS

- a. NPR 7150.2, “NASA Software Engineering Requirements”
- b. LAPD 1700.1, “Safety Program”
- c. LAPD 1700.2, “Safety Assignments and Responsibilities”
- d. LAPD 8500.1, “LaRC Environmental and Energy Management”
- e. LPR 8500.1, “Environmental and Energy Program Manual”
- f. LMS-CP-5621, “Facility Systems Engineering Project Review”
- g. Langley Form 6, “Request for Action”

5. RESPONSIBILITY

- a. Director, COD; Customer Directorate Director; Chief Engineer, COD; Chief Engineer of Customer Directorate

(1) Ensure the effective implementation of the design review process.

- b. Chief Engineer, COD

(1) Preside as chairperson for the Conceptual Design Review (CoDR), Preliminary Design Review (PDR), Critical Design Review (CDR), and Integrated Systems Review (ISR).

(2) Select co-chairperson for the Project Requirements Review (PRR) and Operational Readiness Review (ORR), in consultation with the Customer Directorate Director.

(3) Preside as chairperson for the Project Requirements Review (PRR) and Operational

Readiness Review (ORR).

c. Other Directorate, Assistant, or Associate Directors

- (1) Support the design review process, including closure of Requests for Action (RFAs) as required.
- (2) Furnish senior personnel experienced in the required technical disciplines to support the reviews.

d. Review Chairperson

- (1) Appoint Review Panel members. Organize each panel and draw support from LaRC, NASA Headquarters, other Centers, industry, or other Federal agencies when applicable.
- (2) Chair the review(s).
- (3) Assign and close RFAs.

e. Review Panel Members

- (1) Review the materials provided prior to the design review.
- (2) Originate and review RFAs as appropriate.

f. Line Management

- (1) Ensure that review material meets the requirements of this directive.
- (2) Ensure action items are properly addressed.

g. Project Manager

- (1) In conjunction with the review chairperson, establish the review agenda, using the sample agenda as a guide.
- (2) Develop or oversee development and distribution of review materials.
- (3) Recommend action item assignee and a closure date to the review chairperson.

h. Review Secretary

- (1) Schedule the review in consultation with the review chairperson.
- (2) Document the review proceedings.

(3) Serve as action item coordinator, formally documenting, distributing, and tracking Requests for Action (RFAs).

6. DELEGATION OF AUTHORITY

None

7. MEASUREMENTS/VERIFICATION

None

8. CANCELLATION

LAPD 7000.2, dated July 27, 2009.

Original signed on file

Stephen G. Jurczyk
Center Director

Distribution:

Approved for public release via the Langley Management System; distribution is unlimited.

Attachments A - I

PROJECT REQUIREMENTS REVIEW (PRR)

a. Description

(1) Objective (PRR)

The purpose of the PRR is to ensure that project objectives (especially research objectives) have been translated into definitive, verifiable, and unambiguous statements of requirements. The PRR will normally be scheduled prior to the initiation of a Preliminary Engineering Report (PER).

(2) Membership: See Attachment I for required panel members.

a. Sample Agenda

I. INTRODUCTION

Scope of Review
Agenda

II. PROJECT OVERVIEW

Research/Programmatic Requirements and Project Justification
New Capability/Performance Desired
Project Scope – Construction of Facilities (CoF) Funded Portion
Project Scope – Research and Development (R&D) Funded Portion
Project Scope – Center or Other Funded Portion

III. DESIGN REQUIREMENTS/CONSTRAINTS

Environmental Project Planning Submittal (LF 461)
Interfaces
Functional Requirement Changes since Publication of Requirements Document
Site Selection
Special Systems or Equipment
Safety, Reliability, and Quality Assurance (SR&QA)
Security
Utilities
Design Codes/Criteria
Operations and Maintenance
Design Loads/Environment
Geometric Lines
Hardware/Software
Environmental Impact
Accommodation for Persons with Disabilities

Human Engineering
Project Definition Rating Index (PDRI) results

IV. SUMMARY

CONCEPTUAL DESIGN REVIEW (CoDR)

a. Description

(1) Objective (CoDR)

The objective of the CoDR is to review the functional design requirements, design options, and recommended conceptual design to ensure a sound basis for a final design. The CoDR will normally be scheduled at 90 percent completion of the PER (see NPR 8820.2) or at 10 percent completion of final design.

(2) Membership: See Attachment I for required panel members.

b. Sample Agenda

I. INTRODUCTION

Scope of Review

Status of Conceptual Design (percent complete, earlier studies, and so forth)

Status of Action Items

Agenda

II. PROJECT OVERVIEW

Research/Programmatic Requirements and Project Justification

New Capability/Performance Desired

Project Scope – CoF Funded Portion

Project Scope – R&D Funded Portion

Acquisition Approach

III. DESIGN REQUIREMENTS/CONSTRAINTS

Interfaces

Functional Requirement Changes Since Publication of Requirements Document

Site Selection

Special Systems or Equipment

Safety, Reliability, and Quality Assurance (SR&QA)

Security

Utilities

Design Codes/Criteria

Operations and Maintenance

Design Loads/Environment

Geometric Lines

Hardware/Software

Environmental Impact

Accommodation for Persons with Disabilities
Human Engineering

IV. CONCEPTUAL DESIGN

Evaluation of Options
Project Description (major elements/components) (preliminary Work Breakdown Structure)
Site Description
Architectural Concept Foundation/Structural/Mechanical/Electrical
Concepts and Analyses
Operations and Maintenance Considerations
Design of Special Systems or Equipment
Needed Additional Studies/Tests/Analyses
Summary of How Design Tentatively Meets Requirements
Areas of Design Concern/Uncertainty
Project Definition Rating Index (PDRI) results

V. DESIGN VALIDATION APPROACH

Scope of Analyses (for example, thermal, controls, and so forth)
Methods of Analysis (for example, handbook/finite element/difference/controls simulation, etc.)
Component and Subsystem Testing

VI. SAFETY AND QUALITY ASSURANCE

Facility Energy Source Checklist
Preliminary Hazards List
Preliminary Critical Items List (CIL)
Status of As-Built Reference Interface Drawings
Special Construction Inspection Requirements
Design Safety Considerations

VII. COST

Baseline Construction Estimate
Design/Construction Cost Estimates
Breakdown of Major Cost Elements, including:
 Element Cost Ranges/Uncertainties and Potential for Growth
 Significant Cost Drivers
 Potential Areas for Descoping or Bid Alternatives
 Potential Areas for Design, Furnish and Install Procurement
 Operations & Maintenance Cost
 Overall Cost Assessment and Uncertainties/Concerns

VIII. SCHEDULE

Project Level (with rationale)
Major Element or Work Package Level
Schedule Uncertainties/Concerns

IX. DOCUMENTATION TREE AND STATUS

Project Management Plan
Requirements Document
Requirements Traceability Matrix
Preliminary Acquisition Plan
Environmental Project Planning, LF 461 Update

X. SUMMARY

PRELIMINARY DESIGN REVIEW (PDR)

a. Description

(1) Objective (PDR)

The objective of the PDR is to validate the adequacy of the intended final design approaches as related to the functional design requirements according to applicable policies, design criteria and National Codes. The PDR will normally be scheduled when the final design is approximately 35 percent complete.

(2) Membership: See Attachment I for required panel members.

b. Sample Agenda

I. INTRODUCTION

Scope of Review
Status of Design
Status of Action Items
Agenda

II. PROJECT OVERVIEW

Research/Programmatic Requirements
New Capability/Performance Desired
Project Scope – CoF Funded Portion
Project Scope – R&D Funded Portion
Project Scope – Center or Other Funded Portion

III. PROJECT MANAGEMENT

Work Breakdown Structure
Management Structure/Organization
Roles and Responsibilities
Project Controls and Status Reporting
Configuration/Change Control, Requirements, Cost, Schedule
Contingency Plans (regarding cost and schedule)

IV. DESIGN REQUIREMENTS/CONSTRAINTS

System Interfaces between Work Packages
System Interfaces with Existing Facility
Requirements, including:
 Software Requirements List
 Programmatic Requirements/Objectives List

- Engineering Requirements List
- Design Load/Environments List
- Interface Requirements
- Other Requirements (e.g., environmental, energy, historical)

V. PRELIMINARY DESIGN

- Preliminary Design Concept Drawings
- Design Approach and Supporting Analyses
 - Architectural
 - Process Systems
 - Structural
 - Mechanical
 - Electrical
 - Controls and Instrumentation
 - Software
- Tradeoff Studies
- Areas of Technical Uncertainty/Risk
- Design Verification Results/Plans
- Performance Analyses
- Status Summary of Design Compliance with Design Criteria and Requirements Document
- Project Definition Rating Index (PDRI) results

VI. SAFETY, RELIABILITY, AND QUALITY ASSURANCE

- Overview of SR&QA Approach During Design/Acquisition/Construction/ Checkout
- Hazard Analyses Results and Preliminary Critical Items List (CIL)
- Systems Safety Features Included in Design (interlocks, stops, etc.)
- Implementation of SR&QA Plan
- Field Verification Status of Interface Drawings to be referenced in Acquisition Package
- Potential Revisions and Additions to Existing Facility Baseline List (FBL)
- Areas of Concern or Uncertainty

VII. COST

- Baseline Cost Estimate (PER)
- Current Cost Estimate and Rationale for any Cost Variations
- Cost Concerns/Uncertainties/Unfunded Environmental Liabilities (design or construction)

VIII. SCHEDULE

- Project Level
- Work Package Level
- Status of Design Tasks Against Plan
- Schedule Concerns/Uncertainties (design or construction)

IX. DOCUMENTATION TREE AND STATUS

Note: The following list includes examples of documentation items. The complete list of documentation items is included in the Project Management Plan for the specific project.

- Management Plan
- Requirements Document
- Cost and Schedule Reporting
- Standard Operating Procedures (SOPs)
- SR&QA Plan
- Inspection Plan
- Maintenance and In-Service Inspection Plan/Procedures
- Design Criteria Document
- Environmental Project Planning, LF 461 Update
- Interface Requirements
- Configuration Control Plan
- Hazard Analyses and Critical Items List (CIL)
- Installation Procedures
- Operational Checkout Plan/Procedures
- Software Management Plan
- Software Assurance Plan
- Design Analyses

X. SUMMARY

CRITICAL DESIGN REVIEW (CDR)

a. Description

(1) Objective (CDR)

The objective of the CDR is to ensure that the design is complete and the project is ready to proceed to the acquisition and construction phase. The CDR will confirm that the final design fulfills the design requirements, utilizes good engineering practices, and adheres to applicable LaRC/NASA policies and National Codes. The CDR will be scheduled after the design has been completed and reviewed by the project team, but prior to the initiation of the acquisition/construction phase.

(2) Membership: See Attachment I for required panel members.

b. Sample Agenda

I. INTRODUCTION

Scope of Review
Status of Design
Status of Action Items
Agenda

II. PROJECT OVERVIEW

Research/Programmatic Requirements
New Capability/Performance Desired
Roles and Responsibilities
Project Scope – CoF Funded Portion
Project Scope – R&D Funded Portion
Project Scope – Center or Other Funded Portion

III. PROJECT MANAGEMENT

Work Breakdown Structure
Management Structure/Organization
Overview of Acquisition Plan
Acquisition Package(s) Status

IV. DESIGN REQUIREMENTS/CONSTRAINTS

System Interfaces between Work Packages
System Interfaces with Existing Facility
Elements of Interface Requirements Document

Elements of Design Criteria Document (includes Functional Requirements)

- Software Requirements List
- Programmatic Requirements/Objectives List
- Engineering Requirements List
- Design Load/Environment List
- Interface Requirements

Other Requirements (e.g., environmental, energy, historical)

V. FINAL DESIGN

Final Design Drawings and Specifications

Block Diagrams and Schematics

Design Details and Supporting Analyses including:

- Architectural/Structural/Mechanical/Electrical/Process Systems
- Controls and Instrumentation
- Software

Sequence of Operations

Performance Analyses

Maintainability, Repairability, and Operability

Producibility and Manufacturing Readiness

Human Engineering/Accessibility

Mock-ups, Breadboards, and/or Prototype Hardware

List of equipment to be added or removed from facility

Design Verification Results

Summary of Design Compliance with Design Criteria and Interface Requirements Documents

Areas of Technical Uncertainty/Risk

VI. SAFETY, RELIABILITY, AND QUALITY ASSURANCE

Status of Safety, Reliability, and Quality Assurance (SR&QA) Activities

Verification Status of Interface Reference Drawings

Status of Facility Baseline List Drawings

Independent Reviews of Drawings and Analyses

Hazard Analyses and Updated Critical Items List (CIL)

Quality Assurance Plan

Systems Safety Features included in Design

Overall SR&QA Assessment and Area of Concern/Uncertainty

VII. COST

Baseline Cost Estimate (PER)

Current Cost Estimate and Rationale for any Cost Variations

Cost Concerns/Uncertainties

VIII. SCHEDULE

Project Level, including Construction

Work Package Level
Design Completion and Preparation of Procurement Package
Procurement Cycle
Schedule Concerns/Uncertainties

IX. DOCUMENTATION TREE AND STATUS

Note: The following list includes examples of documentation items. The complete list of documentation items is included in the Project Management Plan for the specific project.

Management Plan
Requirements Document
Cost and Schedule Reporting
Standard Operating Procedures (SOP's)
SR&QA Plan
Inspection Plan
Maintenance and In-Service Inspection Plan/Procedures
Design Criteria Document
Environmental Project Planning, LF 461 Update
Interface Requirements
Configuration Control Plan
Hazard Analyses and Critical Items List (CIL)
Installation Procedures
Operational Checkout Plan/Procedures
Software Management Plan
Software Assurance Plan
Design Analyses

X. SUMMARY

INTEGRATED SYSTEMS REVIEW (ISR)

a. Description

(1) Objective (ISR)

The objective of the ISR is to confirm that the construction has been successfully completed and that appropriate plans and preparations for shakedown have been developed. The ISR will normally be scheduled when the construction and systems level acceptance testing is approximately complete, but prior to initiation of integrated systems testing.

(2) Membership: See Attachment I for required panel members.

b. Sample Agenda

I. INTRODUCTION

Objective and Scope of Review
Agenda

II. PROJECT OVERVIEW

Research/Programmatic Requirements
Description of Construction Project and Functional Operation of Facility
Top Level Schedule and Status
Summary of Prior Reviews of All Types
Status of Open Action Items from Design Reviews

III. CONSTRUCTION

Overview and Overall Status of Construction
Detailed Discussion of Facility Components/Systems/Controls
Brief Descriptions of Specifications by Which Item was Procured/Constructed
Changes in the CDR Design and the Independent Reviewing Body for Each
Summary of all Qualification, Proof, and/or Acceptance Testing Performed and Results
Summary of As-Built Compliance with Contractual Requirements
Status of Construction Contract(s) and Contract Submittals (including as-built drawings)
Concern, Limitations, and Potential Problem Areas

IV. DOCUMENTATION

Overall Documentation Required (documentation tree):

- Design Related
- Safety, Reliability, and Quality Assurance (SR&QA) Related
- Construction Related

- Test Related
- Management Related
- Environmental close-out submittals – refer to requirements in LF461
- Field Verification Status of Facility Baseline List (FBL) As-Built Drawings
- Status Summary

V. FACILITY SHAKEDOWN

- Overview of Objectives
- Management/Staffing Structure/Organization, Roles, and Responsibilities
- Operating Personnel Readiness (includes training and certification)
- Details of Shakedown Plan
 - Tasks
 - Operating Procedures (Standard and Test Unique)
 - Configuration Management Procedures
 - Test Instrumentation and Data Reduction
 - Schedule
- Areas of Concern/Uncertainty

VI. SAFETY, RELIABILITY, AND QUALITY ASSURANCE

- Overview of Facility Safety Program, Special Studies, and Safety Reviews
- Safety Analysis Report/Operational Hazard Analyses (including Software and Shakedown Unique Configurations and Operations)
- Critical Items List (CIL)
- Critical Interlocks
- Quality Assurance/Inspection Utilized and any Deviations Accepted (general items, critical items, and critical interlocks)
- Status of Open Items from Safety/Hazard Analysis Reviews
- Overall SR&QA Assessment and Areas of Concern/Uncertainty

VII. SUMMARY ASSESSMENT OF READINESS FOR INTEGRATED SYSTEMS TESTING

- Hardware
- Software
- Personnel
- Open Items
- Concerns

OPERATIONAL READINESS REVIEW (ORR)**a. Description****(1) Objective (ORR)**

(a) The objective of the ORR is to verify that shakedown has been satisfactorily completed and that the facility is ready to begin normal operations. The ORR will determine whether the shakedown tests demonstrated that the facility meets its performance requirements, all applicable documentation has been completed, and that the facility is adequately staffed and prepared for normal operations.

(b) The ORR will normally be scheduled when the integrated system level test program is completed, but prior to initial research operation of the facility.

(2) Membership: See Attachment I for required panel members.

(3) Action

(a) Prior to the ORR, the Chairperson, and an appointed committee composed of at least three ORR members will conduct a final “walk-through” of the new/modified facility to:

(i) Certify that the facility is operational.

(ii) List all observed safety and quality assurance deficiencies.

(iii) Verify that all prior corrective actions have been incorporated.

(b) The Co-Chairperson representing the facility is to provide a written statement to the LaRC Deputy Director certifying that the facility is acceptable and recommending that the facility be declared operational. All panel members will receive a copy of this written statement.

b. Sample Agenda**I. INTRODUCTION**

Objective and Scope of Review
Agenda

II. PROJECT OVERVIEW

Research/Program Requirements
Operational Scenario Summary
Project Scope and Status Summary
Top Level Schedule and Summary
Status of Open Action Items from Prior Reviews

III. INTEGRATED SYSTEMS TESTING

- Test Results Against Plan
- Verification of Critical Interlocks
- Resolution of Problems/Failures
- Configuration Changes
 - Documentation
 - Hardware
 - Software
- Summary of Overall Project Compliance with Requirements

IV. DOCUMENTATION

- Status of Overall Project Documentation Against Requirements
- Archival Responsibilities and Status
- Lessons Learned

V. OPERATIONS PROCEDURES

- Roles and Responsibilities
- Verification of Standard Operating Procedures (SOPs)
- Emergency Procedures

VI. SAFETY, RELIABILITY, AND QUALITY ASSURANCE

- Safety Analysis Changes Since ISR
- Safety Compliance Verification
- Personnel Training and Certification
- Quality Assurance and Compliance with Specifications
- Configuration Management

VII. SUMMARY ASSESSMENT OF OPERATIONAL READINESS

- Hardware
- Software
- Personnel
- Procedures/Documentation
- Open Items

TABLETOP REVIEW

a. Description

(1) Objective

The objective of the Tabletop Review is to perform a detailed review of the engineering documents. This review is tailored to the specific needs of the project, consistent with project size, complexity, criticality, and risk and looks at the actual engineering/design documentation such as drawings, specifications, calculations, cost estimates, and schedules. Multiple Tabletop Reviews, by discipline or work package may be conducted for a specific project. Tabletop Reviews can be held at the PRR, CoDR, PDR, and CDR stages or at any other time during the design process as deemed necessary by the Chief Engineer, COD.

(2) Membership: See Attachment I for required panel members.

b. Sample Agenda

I. INTRODUCTION

Scope of Review
Review Objectives
Agenda

II. PROJECT OVERVIEW

Research/Programmatic/Customer Requirements
Project Scope
Project Team
Acquisition Plan
Schedule

III. CONTENT OF REVIEW PACKAGE *

IV. SUMMARY

***PRR**

- Requirements Document
- Environmental (LF 461)
- Other documentation as required

***CoDR**

- Requirements Document (for reference)
- Drawings
 - Conceptual drawings / trade studies
 - Preliminary list of Reference Drawings
- Analysis
 - Outline of analysis approach
 - Completed performance analysis required to verify the concept
 - Analysis summary for review panel
- Safety Report
 - Initial hazard list
 - Initial critical items list
- Environmental (LF 461)
- Cost Estimate
 - Current working cost estimate
- Schedule
 - Current working schedule
- Project Management Plan (for reference)
 - WBS
 - Criteria
- Current status of derived design requirements
- Conceptual sequence of operation and control scheme

***PDR**

- Requirements Document (for reference)
- Drawings
 - Layouts, schematics, site plans, one-line diagrams with enough detail to completely define the systems
 - Current list of Reference Drawings
 - Current list of CCD drawings and documents
- Analysis
 - Completed performance analysis with enough detail to verify the design approach related to design requirements
 - Analysis summary for review panel

- Specifications
 - Outline of SPECSINTACT Table of Contents
 - Special construction or supply sections identified
- Safety Report
 - Preliminary hazard analysis
 - Preliminary critical items list
- Environmental (LF 461)
- Cost Estimate
 - Current working cost estimate
- Schedule
 - Current working schedule
- Project Management Plan (for reference)
 - WBS
 - Criteria
- Derived design requirements (for reference)
- Current sequence of operation and control scheme

***CDR**

- Requirements Document (for reference)
- Kickoff Meeting Viewgraphs
- Drawings
 - Checked and signed by project team
 - Reference Drawings
 - Redlined CCD drawings and documents (with CNS)
- Analysis
 - Checked and signed by project team
 - Analysis summary for review panel
- Specifications
 - Checked by project team
- List of equipment to be added or removed from facility
- Safety Report
 - Completed hazard analysis
 - Completed critical items list
 - SAR / SOPs
- Environmental (LF 461)
- Cost Estimate
 - Current cost estimate
- Schedule
 - Current schedule
- Project Management Plan (for reference)

- WBS
- Criteria
- Derived design requirements (for reference)
- Final sequence of operation and control scheme

MANAGEMENT OVERSIGHT REVIEW (MOR)a. Description

(1) Objective

The Management Oversight Review is intended to be an oversight review, not a detailed review. It is utilized as an integrated project review when multiple Tabletop Reviews are conducted for a project (i.e. structural, electrical, mechanical, analyses, etc.) when technical risk and complexity warrant management review or when recommended by the Tabletop Review Panel.

The Management Oversight Review is conducted following the successful completion and closure of findings and action items from all Tabletop Reviews for the project. The Management Oversight Review provides an integrated systems overview, project cost and schedule data, and summarizes the findings and disposition of action items from the Tabletop Review. Panel members wishing a more detailed review should be invited to and participate in Table Top Reviews.

(2) Membership: See Attachment J for required panel members.

b. Sample Agenda

I. INTRODUCTION

Scope of Review
Review Objectives
Agenda

II. PROJECT OVERVIEW

Research/Programmatic/Customer Requirements
Project Scope
Project Team

III. OVERVIEW OF INTEGRATED SYSTEMS

Open Issues
Performance
Concerns

IV. FINDINGS FROM TABLEtOP REVIEWS

V. SAFETY

VI. ENVIRONMENTAL

VII. PROCUREMENT PLAN

VIII. PROJECT COST ESTIMATE

IX. PROJECT SCHEDULE

X. SUMMARY

REQUIRED AND ADDITIONAL REVIEW PANEL MEMBERS

Mandatory Review Panel Members	PRR	CoDR	PDR	CDR	Table Top	MOR	ISR	ORR
Chairman: COD Chief Engineer	X (1)	X (1)	X	X	X (1)	X	X	X
Co-Chairperson: Customer Organization Director Appointed	X							X
Secretary: Appointed by Chief Engineer	X	X	X	X	X	X	X	X
Safety and Facility Assurance Branch (SFAB) Head	X	X	X	X		X	X	X
COD Senior Safety Engineer	X	X	X	X			X	X
Facility Manager	X	X	X	X			X	X
Facility Systems Engineer	X	X	X	X			X	X
Facility Safety Head	X	X	X	X	X		X	X
Facility Coordinator	X	X	X	X	X		X	X
Customer	X	X	X	X	X	X	X	X
Customer's Organizational Manager	X	X	X	X		X	X	X
Standard Practice Engineer(s) and Technical Expert(s)	X	X	X	X	X	X	X	X
•Pressure Systems	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)
•Mechanical Systems	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
•Electrical Systems	(4)	(4)	(4)	(4)	(4)	(4)	(4)	(4)
•Model Systems	(5)	(5)	(5)	(5)	(5)	(5)	(5)	(5)
•Facility Automation Systems	(6)	(6)	(6)	(6)	(6)	(6)	(6)	(6)
•Welding	(7)	(7)	(7)	(7)	(7)	(7)	(7)	(7)
•Structures/Civil SPE – Technical Expert								
•Lifting Manager – Technical Expert	(8)	(8)	(8)	(8)	(8)	(8)	(8)	(8)
•Data Acquisition Systems – Technical Expert	(9)	(9)	(9)	(9)	(9)	(9)	(9)	(9)
•Fire Chief - Technical Expert	(10)	(10)	(10)	(10)	(10)	(10)	(10)	(10)
•IT Manager - Technical Expert	(11)	(11)	(11)	(11)	(11)	(11)	(11)	(11)
Facility Lead Operator					X		X	X
Projects & Engineering Branch Head	X	X	X	X		X	X	X
CoF Program Manager	X	X	X	X		X		
Environmental Management Branch Head	X	X	X	X	X	X	X	X
Maintenance & Utilities Branch Head	X	X	X	X		X	X	X
Maintenance Manager					X	X		
Engineering Contract Specialist					X			
DCOR for Engr. for CMOE -or- COR (non CMOE)	X	X	X	X		X	X	X
CO (for >\$2M procurements/legal review)				X (12)		X		
SFAB Safety Engineer					X			
Tabletop Review Chairpersons (from all tabletop reviews)						X		
Construction Manager							X	X

Additional Review Panel Members (not already listed above)	PRR	CoDR	PDR	CDR	Table Top	MOR	ISR	ORR
Security Chief	(13)	(13)	(13)	(13)	(13)	(13)	(13)	(13)
American Disability Act Coordinator	(14)	(14)	(14)	(14)	(14)	(14)	(14)	(14)
Master Planner	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
Energy Manager	(16)	(16)	(16)	(16)	(16)	(16)	(16)	(16)
Real Property Officer	(17)	(17)	(17)	(17)	(17)	(17)	(17)	(17)

- Note 1: COD Chief Engineer may designate alternate such as the COD Project Manager to chair this review
- Note 2: Work involved with pressurized system (>125 psig), Vacuum Systems, Cryogenic systems, Structural Glass
- Note 3: Work involved with machine design components and research mechanical systems
- Note 4: Work with power distribution systems and industrial power and control systems
- Note 5: Work on test articles and wind tunnel models or interface systems
- Note 6: Work on research and industrial automation and control systems
- Note 7: Welding SPE for Facilities when work involves ASME or AWS welding requirements. (Welding SPE if welding on flight systems or models involved).
- Note 8: Work involving civil/structural systems
- Note 8: Work involving lifting operations, critical lifts, and or lifting equipment.
- Note 9: Work involving research Data Acquisition Systems
- Note 10: Work involving fire/hazard code questions including fire suppression/detection, building ingress/egress, electrical hazard zones.
- Note 11: Work involving equipment interfaces, wireless technology, IT security requirements.
- Note 12: Contracting Officer is required for CDR level reviews on projects >\$2Million so that he can obtain legal review of Specifications.
- Note 13: Work involving new building, additions, perimeter fence, building access/locks, center traffic rerouting/disruption, center gates, badge & pass, security offices
- Note 14: Work involving ADA compliance, disruption to ADA access points to building, work requiring relocation of personnel
- Note 15: New buildings/additions/major rehabs, road/parking lot changes, ADA changes, projects involving the transfer, easement, leasing of land, land use changes
- Note 16: Energy projects, water projects, metering, new buildings, building additions
- Note 17: Demolition, new buildings, building additions, east side changes, leasing arrangements, projects involving the transfer, easement, or leasing of land